REMARKS

The Amendment to the Specification

The Examiner had previously objected to the disclosure because of embedded hyperlinks. Applicant had previously amended the disclosure at the bottom of page 2 to delete the embedded hyperlink there, and now has made another amendment to delete an embedded hyperlink found at page 18.

Amendment Of The Claims

And Support Therefor

The claims have been amended to delete references to "client" or "client computer", and to delete the term "arbitrary shape", and to replace those with references to "customer" or "customer computer" or "shape originated by a customer".

The specification at page 18, lines 7-9 states:

> "The server computer system 10 can be accessed by a plurality of client or customer computers, such as 12, 14 and 16 over a global communication system 18, such as the Internet."

See also Fig. 1, where elements 12, 14 and 16 carry the labels "Customer #1", "Customer #2" and "Customer #3".

Thus it is very clear that Applicants were using the terms "client" and "customer" interchangeably in this application and were in fact referring to customers and to the customer's computer. The following portions of the

specification make it clear that the CAD files being input by that customer into the computer system for pricing are pre-existing files describing parts having a shape of the customer's origination, and that those pre-existing files are constructed independently of the pricing program of the manufacturer and free of any restraints imposed by the pricing program of the manufacturer.

As described in the following language quoted from the specification at page 1, line 10 – page 2, line 14, the typical customer is a design engineer who is designing a new apparatus, wherein each proposed component of the apparatus is fully described by a digital electronic model referred to as a CAD file:

> "The present invention relates generally to automated quotation systems, and more particularly, but not by way of limitation, to an automated quotation system for providing binding instantaneous online quotes to a design engineer needing custom manufactured parts on an expedited basis.
>
> ****
>
> "When a design engineer is designing a new mechanical or electrical apparatus, it is often desired to construct a full scale three dimensional prototype of the apparatus in order to fully evaluate and visualize the arrangement and suitability of the components which have been proposed to make up the apparatus.
>
> "Originally, the construction of such prototypes was a painstaking, time consuming and expensive process which involved the creation by hand of each component through traditional machining processes wherein each desired component would be formed by machining away undesired material from a block of metal, plastic, wood or the like. Those traditional machining operations are generally referred to as subtractive manufacturing processes, because the component is formed by subtracting material from a solid block of material through the machining process.
>
> "More recently, with the advent of computer aided design (CAD) techniques wherein each of the proposed components is fully described by a digital electronic model,

> there have developed a number of additive manufacturing techniques. These additive manufacturing techniques involve the use of computer controlled manufacturing processes which can manufacture a three dimensional part from a CAD file describing the part. "

And it will be very apparent from the following portions of the specification (page 19, lines 1-10) and drawings that it is this customer's file that is being entered into the computer doing the pricing analysis:

> "Referring now to Fig. 2, as indicated at block 20, a user of the online automatic quotation system **10** will first log onto the website and register as a user. If the customer has previously utilized the website, the site will automatically recognize the customer via a cookie previously placed upon the client computer **12**, thus expediting the log on/registration process.
>
> Next, as indicated in block 22, the customer will upload the CAD files in STL format over the global communications network **18** onto the server computer system **10**.
>
> Fig. 3 illustrates the screen displayed on the client computer **12** during the file uploading process."

The text in the screenshot of Fig. 3 reads "Click the 'Browse' button to select the file to upload." As will be understood by those skilled in the art, that action will select a file residing on the customer's computer system, and that selected file will subsequently be uploaded to the server computer system operated by the manufacturer.

It is submitted that the above portions of the specification clearly communicate to a person of ordinary skill in the art that (as described in claim 1, for example) the "pre-existing CAD file describing a three dimensional custom manufactured part of shape originated by the customer" is describing a part

designed by the customer, e.g. designed by the design engineer. That file is necessarily pre-existing in that it must exist before the customer can access the server computer and upload the file from the customer's computer to the server computer. This is contrasted to the Abraham system wherein the shape of the product is not a shape originated by the customer, but rather is selected from a menu of available shapes specified by the manufacturer.

The Protomold.com Reference

The Examiner's rejections at paragraphs 6 and 7 of the last Office Action all rely in part upon the Protomold.com reference. As Applicants have previously explained the Protomold.com reference as constructed by the Examiner is not prior art to the present application. As shown in the DECLARATION UNDER RULE 131 previously submitted in this application back on or about August 9, 2005 (originally for the purpose of overcoming a different reference) the present invention was reduced to practice at least by January 3, 2000 when Applicant's website including all the claimed features was launched.

Much of the Protomold.com reference cited by the Examiner was generated after January 3, 2000, including at least pages 6-14 and page 17 thereof, all of which according to the marginal notations on the bottom of each page were recorded on Archive.org after January 3, 2000.

Since much of the Examiner's discussion of Protomold.com does not indicate what portions of the document the Examiner is relying on, it is respectfully submitted that the Protomold.com reference as it is presently constituted does not

constitute prior art to the present application, and the reference should be withdrawn.

For this same reason the Examiner's rejection of claims 22 and 60 based upon Abraham et al. in view of Protomold.com and further in view of Partsnow.com should be withdrawn.

Conclusion

For all of the reasons set forth above it is respectfully submitted that claims 1-73 as amended are all in condition for allowance.

Respectfully submitted,

/Lucian Wayne Beavers, 28,183/
Lucian Wayne Beavers
Registration No. 28,183
WADDEY & PATTERSON
A Professional Corporation
Customer No. 23456

ATTORNEY FOR APPLICANT

This attorney is located at our Nashville, Tennessee office and can be contacted directly at:

Lucian Wayne Beavers
Waddey & Patterson
1600 Division Street
Roundabout Plaza
Nashville, TN 37203
(615) 242-2400

CERTIFICATE OF ELECTRONIC FILING

I hereby certify that this SUPPLEMENTAL AMENDMENT AND INTERVIEW SUMMARY plus attached Exhibits A-E, for U.S. Patent Application No. 09/736,555 filed December 13, 2000 are being filed by electronic filing addressed to:

Mail Stop Amendment
Commissioner for Patents

On February 2, 2007

/Lucian Wayne Beavers, 28,183/

Lucian Wayne Beavers

09/736,555
EX.A TO INTERVIEW
SUMMARY

CLAIM AMENDMENTS

Claims 1-73 are currently pending. By the present amendment claims 1, 2, 7, 14-22, 24, 25, 27, 28 and 70-73 have been amended. No new claims have been added by this amendment.

Claim 1(currently amended): A method of providing a firm price quotation for a custom manufactured part, comprising:

~~(a) permitting a client to provide on a client computer a pre-existing computer aided design (CAD) file describing a three-dimensional custom manufactured part of arbitrary shape determined by the client;~~

(a) [[(b)]] ~~permitting the client to access~~ receiving access on a server computer system from ~~the~~ a client computer over a global communication network;

(b) [[(c)]] uploading from the client computer to the server computer system a pre-existing computer aided design (CAD) file describing a three-dimensional custom manufactured part of arbitrary shape determined by a client ~~the pre-existing CAD file~~;

(c) [[(d)]] analyzing the pre-existing CAD file on the server computer system to determine one or more manufacturing criteria for the custom manufactured part of arbitrary shape;

(d) [[(e)]] calculating in the server computer system a firm price quotation for the custom manufactured part of arbitrary shape based upon the one or more manufacturing criteria; and

(e) [[(f)]] transmitting the price quotation to the client computer over the global communication network.

Claim 2(currently amended): The method of claim 1, wherein:

step (d) [[(e)]] is performed substantially instantly with a pre-programmed pricing formula.

~~Claim 3(original):~~ The method of claim 2, wherein the pricing formula is in the form:

price = a * V + b * H + c;

where a, b and c are preprogrammed constants, where V is the volume of the part, and where H is a vertical dimension of the part in a selected orientation.

Claim 4(original): The method of claim 3, wherein:

the selected orientation of the part is selected to minimize H and thus minimize the calculated price.

Claim 5(original): The method of claim 3, wherein:

the pricing formula includes a finish charge dependent upon a selected finish and a surface area of the part.

Claim 6(original): The method of claim 3, wherein:

optimizing an arrangement of the parts of the buildset within an available volume of a selected manufacturing machine to minimize an overall height of the buildset within the manufacturing machine, the overall height of the buildset being one of the one or more manufacturing criteria; and

step (d) [[(e)]] includes calculating a firm price quotation for the entire buildset based at least in part upon the overall height of the buildset.

Claim 29(original): The method of claim 1, wherein the one or more manufacturing criteria further includes identification of three-dimensional geometric features relevant to a difficulty of the manufacturing process.

Claim 30(original): The method of claim 29, wherein the three-dimensional geometric features include at least one feature selected from the group consisting of parting lines, undercuts, pockets, protrusions, wall thickness, surface features and solid features.

Claim 31(previously presented): A program stored in a computer readable media for generating binding price quotations for custom manufactured parts comprising:

a CAD file analysis program portion for receiving a pre-existing CAD file describing one or more three-dimensional custom manufactured parts of arbitrary shape, said pre-existing CAD file being constructed independently of the program, and for analyzing the pre-existing CAD file to determine one or more manufacturing

criteria corresponding to each three-dimensional custom manufactured part of arbitrary shape; and

a price generation program portion for generating a binding price quotation based upon the one or more manufacturing criteria when executed by a processor.

Claim 32(original): The program of claim 31, wherein the CAD files are in STL format.

Claim 33(original): The program of claim 31, wherein:

the price generation program portion includes a pricing formula in the form:

price = a * V + b * H + c;

where a, b and c are preprogrammed constants;

where V is the volume of each part; and

where H is a vertical dimension of each part in a selected orientation.

Claim 34(original): The program of claim 33, wherein:

the constants a, b and c correspond to a specific business operations facility and are determined by a statistical regression of multiple data points of price data for the specific business operations facility onto the pricing formula.

Claim 35(original): The program of claim 33, wherein:

the selected orientation of the part is selected such that H is minimized and the generated price quotation thus minimized.

the buildset grouping program portion determines a platform area required by each part, orders the parts from largest to least required platform area, and selects the largest parts sequentially to make-up the subsets.

Claim 50(original): The program of claim 31, further comprising:

a buildset grouping program portion for grouping a plurality of parts making up the buildset into a plurality of subsets of parts, each subset being of a size that will fit into an available volume of a selected manufacturing machine.

Claim 51(original): The program of claim 31, further comprising:

a buildset grouping program portion for determining X, Y and Z components for a rectangular box space enclosing each part of a plurality of parts making up a buildset and for then optimizing an arrangement of the parts within the available volume to minimize an overall height of the buildset within the manufacturing machine; and

wherein the price generation program portion includes overall height of the buildset as one of the one or more manufacturing criteria.

Claim 52(previously presented): A method of providing a firm price quotation for a custom manufactured part, comprising:

(a) loading onto a computer system a pre-existing computer aided design (CAD) file describing a three-dimensional custom manufactured part of arbitrary shape;

(b) analyzing the pre-existing CAD file on the computer system without human intervention to determine one or more manufacturing criteria for the three-dimensional custom manufactured part of arbitrary shape;

(c) calculating in the computer system without human intervention a firm price quotation for the three-dimensional custom manufactured part of arbitrary shape based upon the one or more manufacturing criteria; and

(d) displaying the price quotation.

Claim 53(original): The method of claim 52, wherein:

step (c) is performed substantially instantly with a pre-programmed pricing formula.

Claim 54(original): The method of claim 53, wherein the pricing formula is in the form:

price = a * V + b * H + c;

where a, b and c are preprogrammed constants, where V is the volume of the part, and where H is a vertical dimension of the part in a selected orientation.

Claim 55(original): The method of claim 52, further comprising:

prior to step (c) permitting a user to select one of a plurality of available manufacturing processes; and

Claim 65(original): The method of claim 52, wherein the one or more manufacturing criteria further includes identification of three-dimensional geometric features relevant to a difficulty of the manufacturing process.

Claim 66(original): The method of claim 65, wherein the three-dimensional geometric features include at least one feature selected from the group consisting of parting lines, undercuts, pockets, protrusions, wall thickness, surface features and solid features.

Claim 67(previously presented): The method of claim 52, wherein:

the computer system includes both a client computer and a server computer.

Claim 68(previously presented): The method of claim 67, wherein:

the client computer and the server computer communicate with each other over a global communication network.

Claim 69(previously presented): The method of claim 52, wherein:

the computer system includes ~~one and~~ only one computer.

Claim 70(currently amended): A method of providing a firm price quotation for a custom manufactured part, comprising:

(a) ~~permitting a client to~~ receiving access on a server computer from a client computer over a global communication network;

(b) loading onto one of the client computer and the server computer a pre-existing computer aided design (CAD) file describing a three-dimensional custom manufactured part of arbitrary shape, said pre-existing CAD file being created by ~~the~~ a client prior to accessing the server computer;

(c) analyzing the CAD file on said one computer to determine one or more manufacturing criteria for the three-dimensional custom manufactured part of arbitrary shape;

(d) calculating in the server computer a firm price quotation for the three-dimensional custom manufactured part of arbitrary shape based upon the one or more manufacturing criteria; and

(e) transmitting the price quotation to the client computer over the global communication network.

Claim 71(currently amended): A method of providing a firm price quotation for a custom manufactured part, comprising:

(a) ~~permitting a client to~~ receiving access on a server computer system from a client computer over a global communication network;

(b) uploading from the client computer to the server computer system a pre-existing three-dimensional computer aided design (CAD) file describing a three-dimensional custom manufactured part of arbitrary shape, said pre-existing three-dimensional CAD file being created by ~~the~~ a client prior to accessing the server computer ~~system~~;

(c) analyzing the CAD file on the server computer system to determine one or more manufacturing criteria for the three-dimensional custom manufactured part of arbitrary shape; and

(d) calculating in the server computer system a firm price quotation for the three-dimensional custom manufactured part of arbitrary shape based upon the one or more manufacturing criteria.

Claim 72(currently amended): A method of providing a firm price quotation for a custom manufactured part, comprising:

(a) loading onto a computer a pre-existing computer aided design (CAD) file describing a three-dimensional custom manufactured part of arbitrary shape, said pre-existing CAD file being independently constructed free of any design restraints ~~restrains~~ imposed by the computer;

(b) analyzing the pre-existing CAD file on the computer to determine one or more manufacturing criteria for the three-dimensional custom manufactured part of arbitrary shape; and

(c) calculating a firm price quotation for the three-dimensional custom manufactured part of arbitrary shape based upon the one or more manufacturing criteria.

Claim 73(currently amended): A method of providing a firm price quotation for a custom manufactured part to be manufactured by injection molding of thermoplastic material, comprising:

(a) ~~permitting a client to~~ receiving access on a server computer system from a client computer over a global communication network;

(b) uploading from the client computer to the server computer system a pre-existing computer aided design (CAD) file describing a three-dimensional custom manufactured part of arbitrary shape;

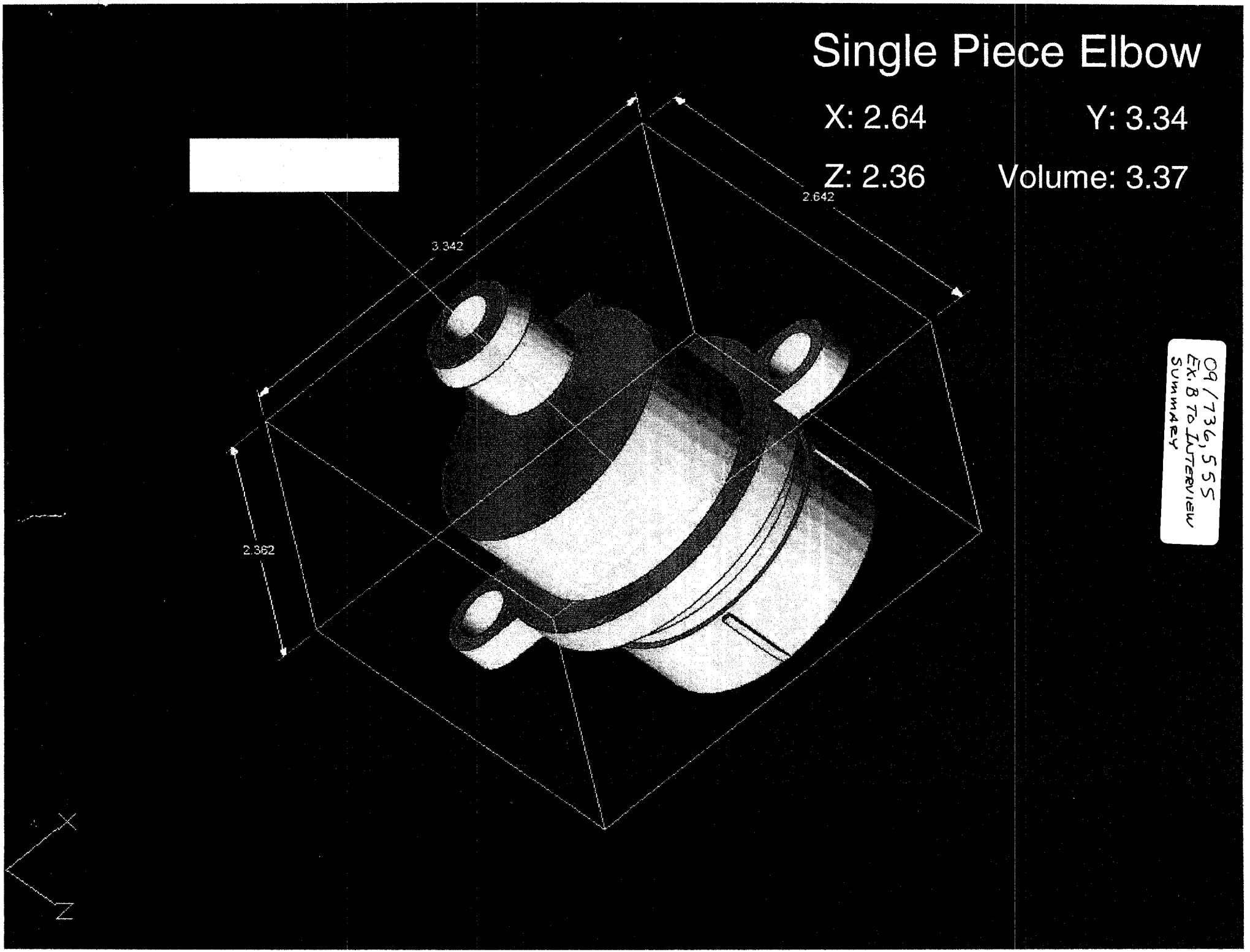
(c) analyzing the CAD file on the server computer system to determine one or more manufacturing criteria for the three-dimensional custom manufactured part of arbitrary shape; and

(d) calculating a firm price quotation for the three-dimensional custom manufactured part of arbitrary shape based upon the one or more manufacturing criteria, said quotation being based upon both tooling pricing and molded part pricing.

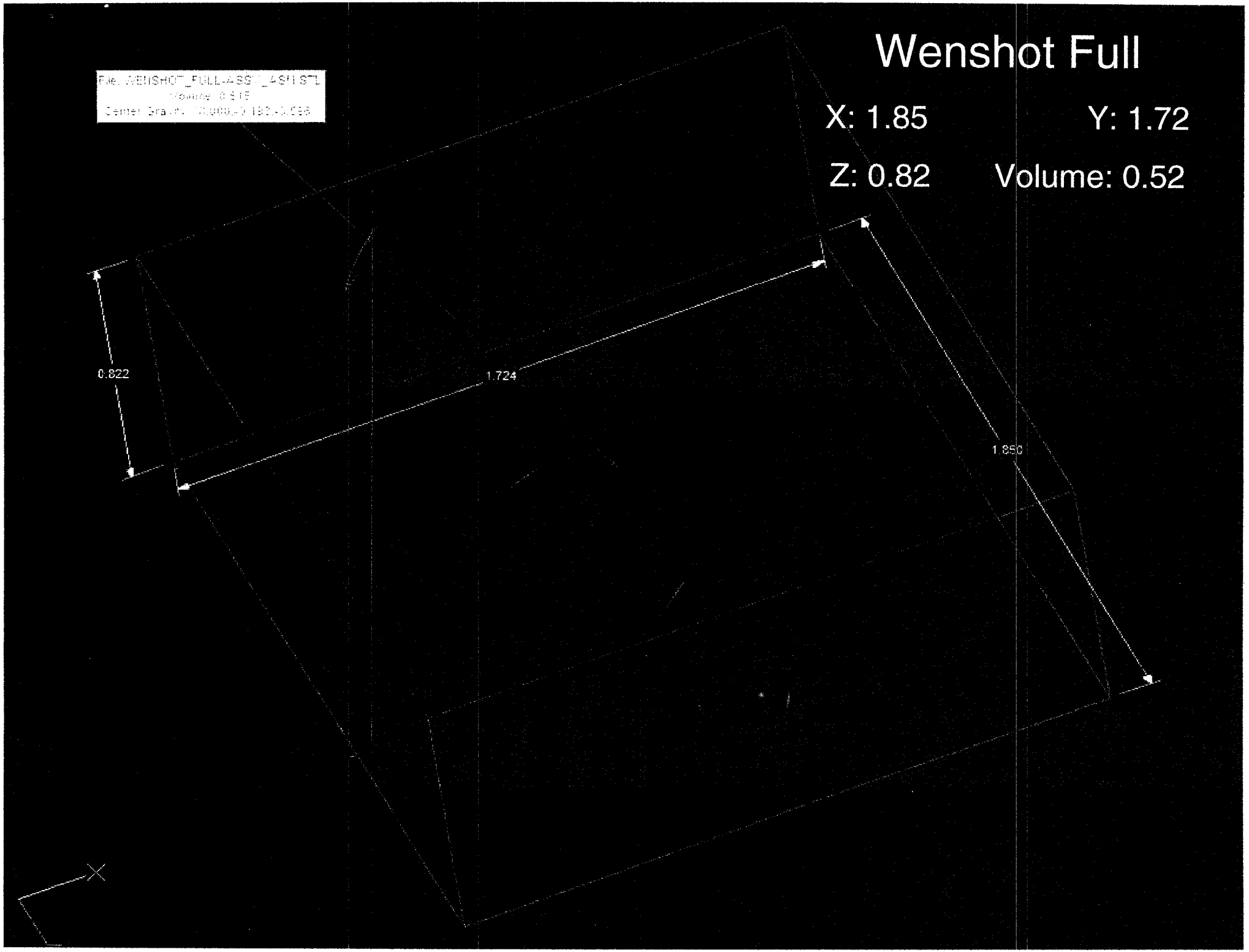
Single Piece Elbow

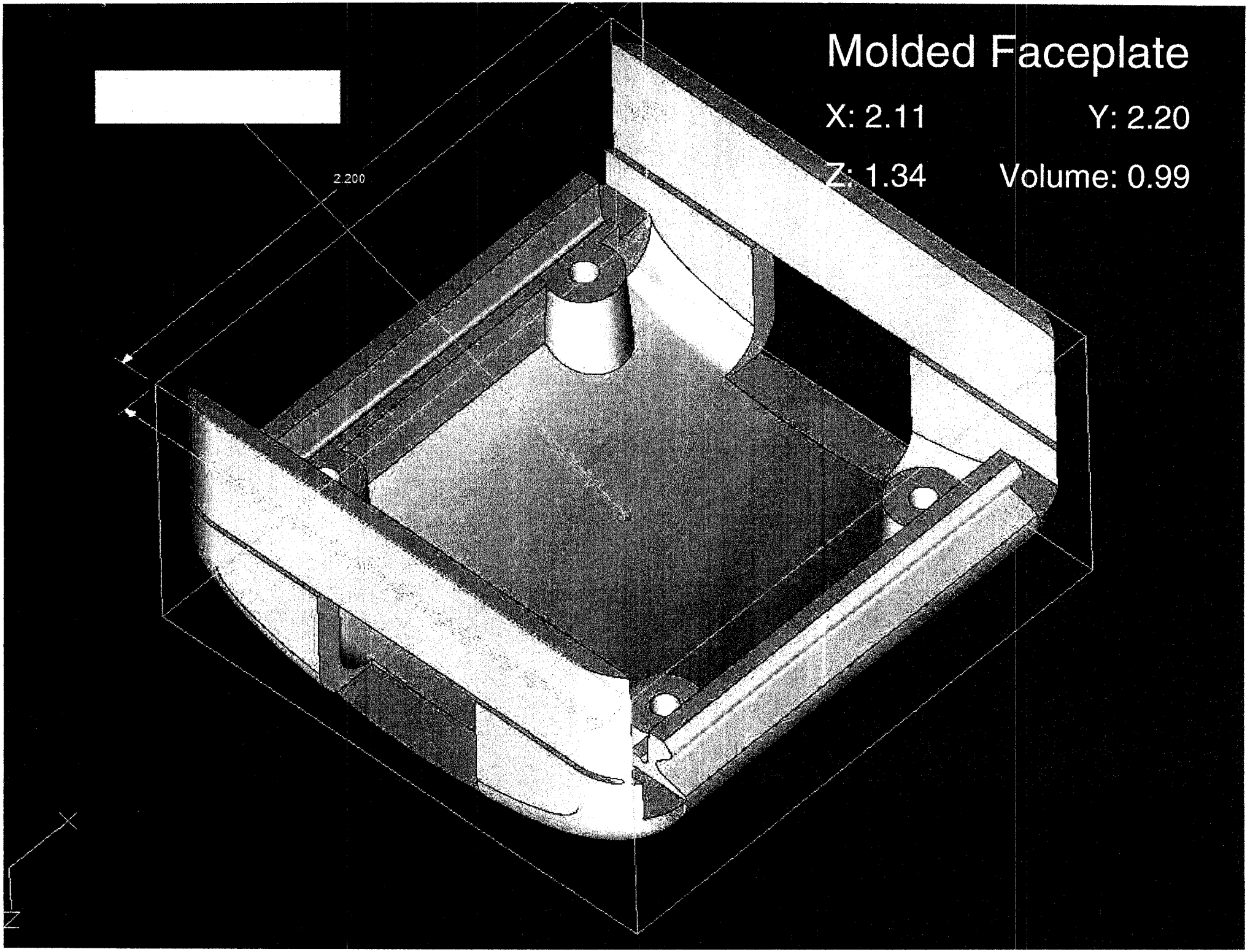
X: 2.64 Y: 3.34

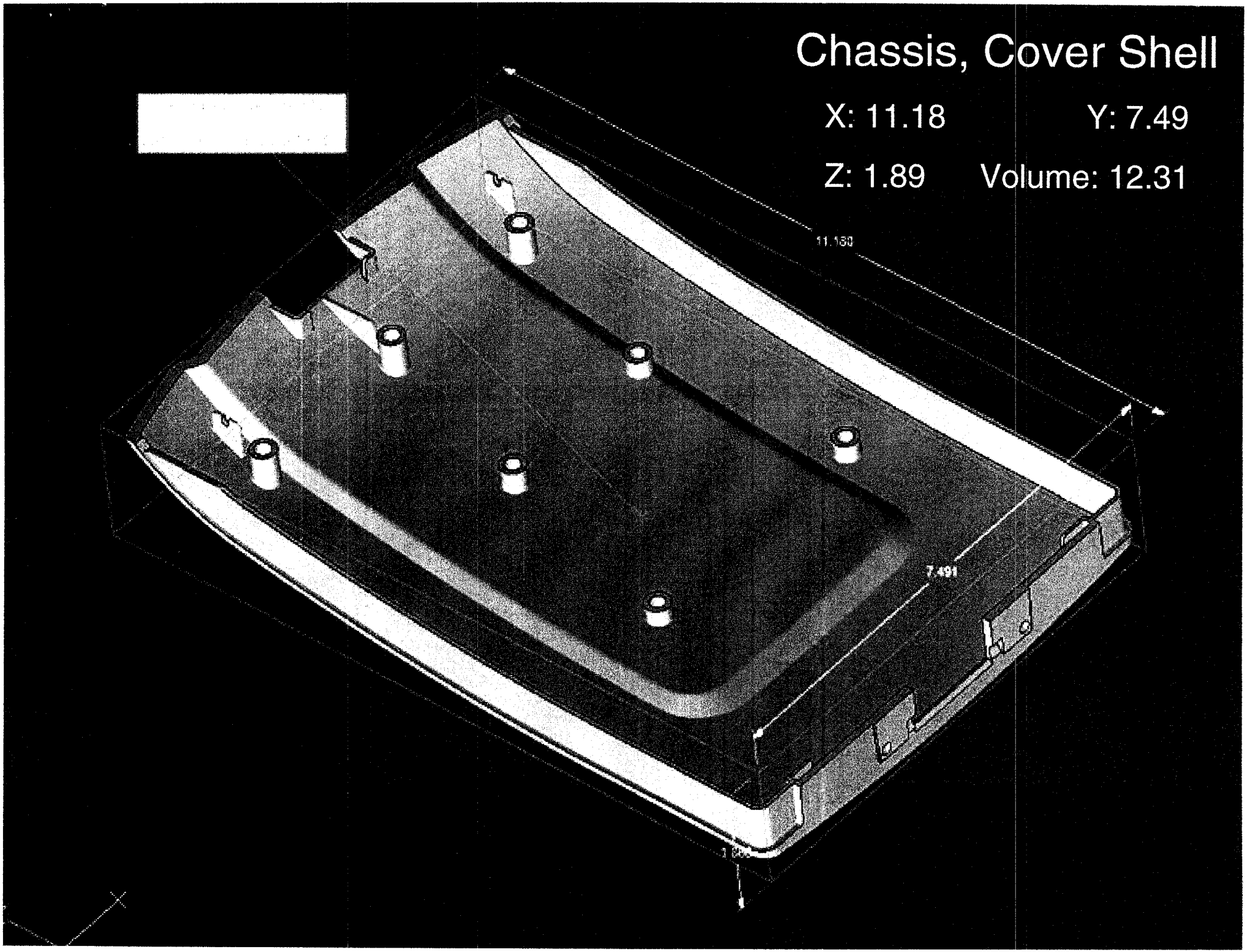
Z: 2.36 Volume: 3.37

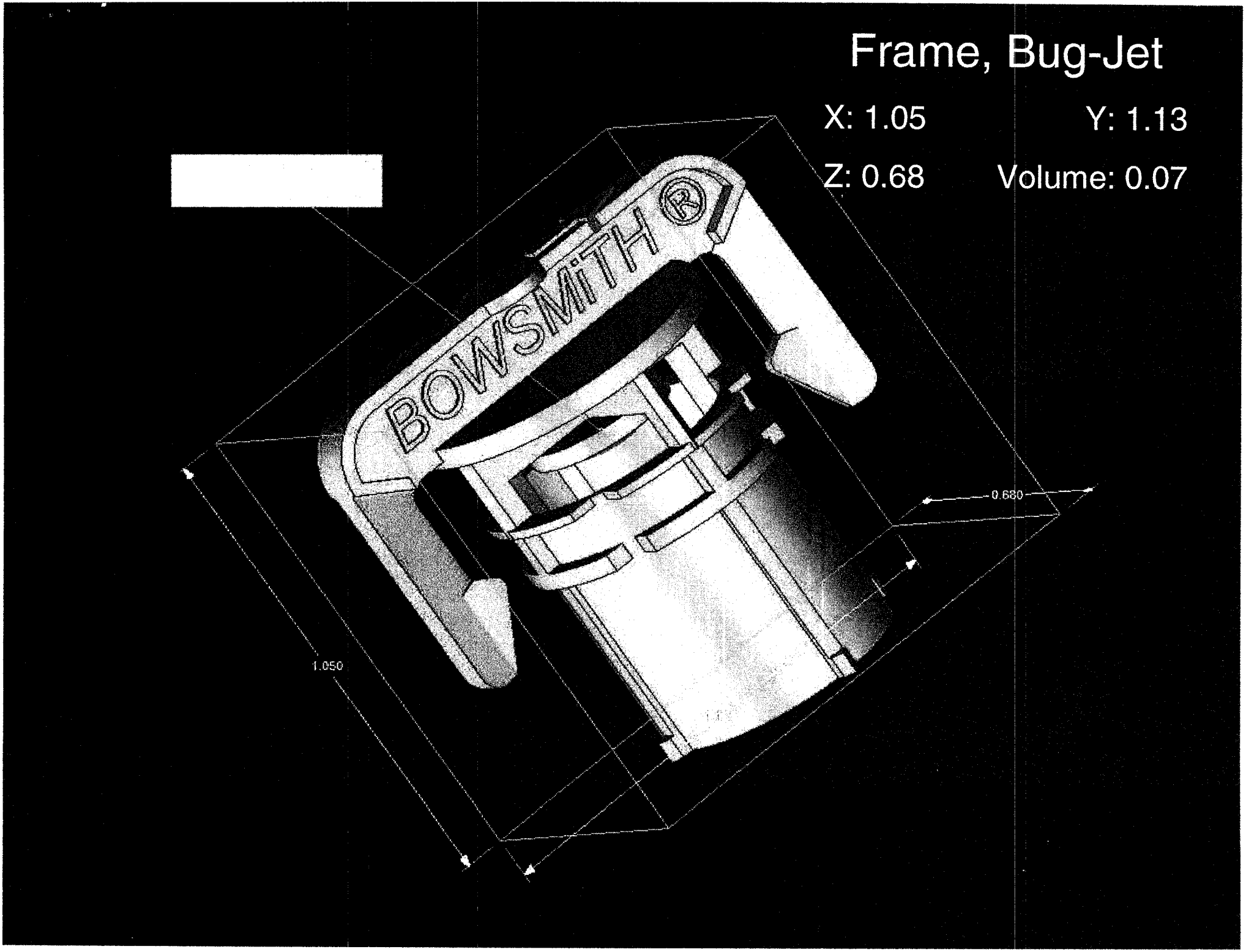


09/736,555
Ex. B to Interview
Summary


Wenshot Full
X: 1.85
Y: 1.72
Z: 0.82
Volume: 0.52
0.822
1.724
1.850


Molded Faceplate
X: 2.11
Y: 2.20
Z: 1.34
Volume: 0.99
2.200


Chassis, Cover Shell
X: 11.18
Y: 7.49
Z: 1.89
Volume: 12.31
11.180
7.491


Frame, Bug-Jet
X: 1.05
Y: 1.13
Z: 0.68
Volume: 0.07
BOWSMITH
0.680
1.050

09/736,555
EX. C TO INTERVIEW
SUMMARY

FIG.1

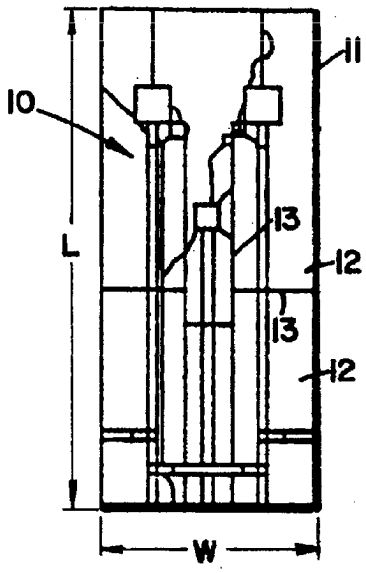


FIG.2

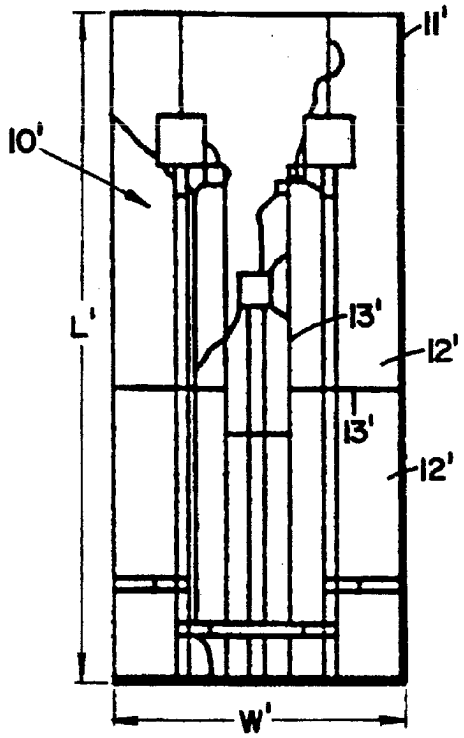


FIG.3

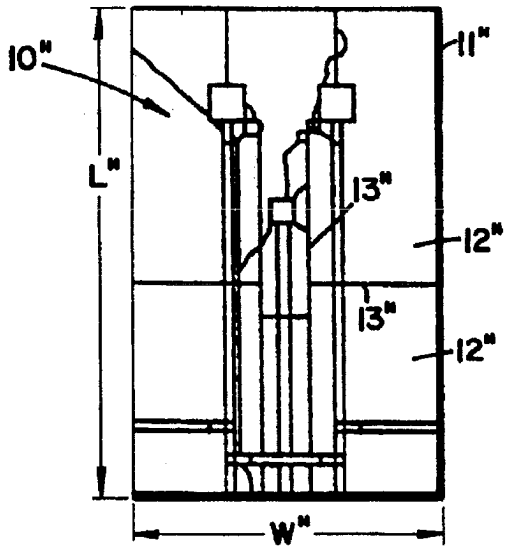


FIG.4

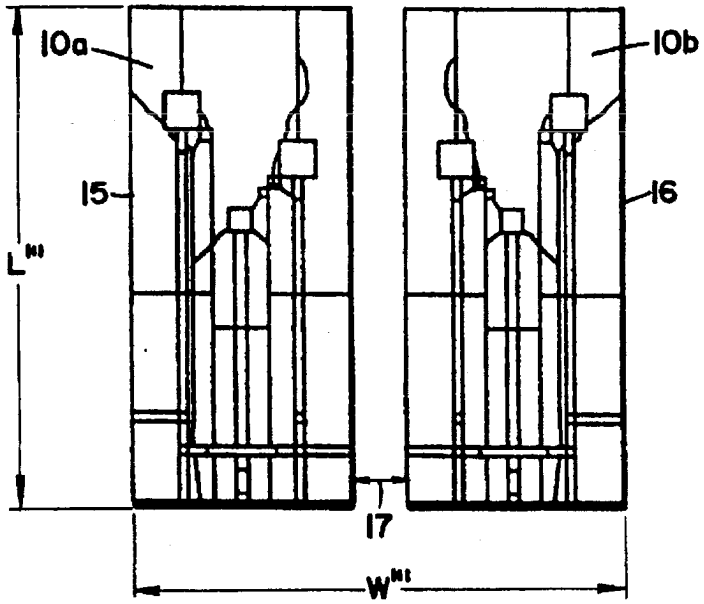
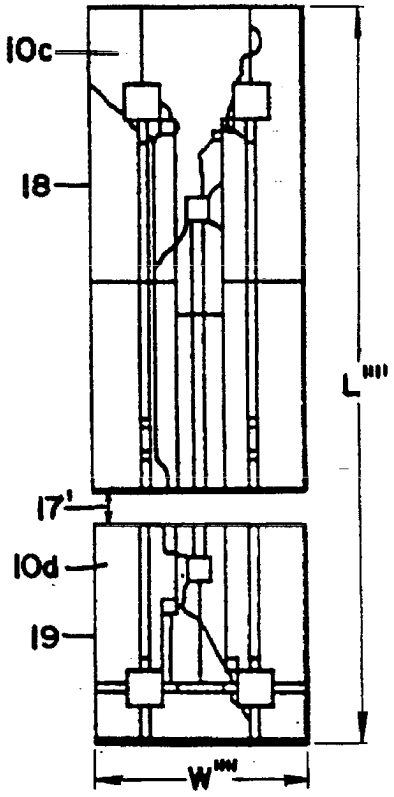


FIG.5



09/736,555
EX. D TO INTERVIEW
SUMMARY

ARGUMENT RE "ARBITRARY SHAPE"

"Applicant's Admitted Prior Art (hereinafter referred to as AAPA)" which the Examiner has described as follows: "However, AAPA discloses that these additive manufacturing techniques involve the use of computer controlled manufacturing processes which can manufacture a three dimensional part from a CAD file describing the part (page 2, lines 12-14); and the designer can use a pre-existing CAD file or may wish to create one expressly for prototyping purposes (page 5, lines 5-7)".

In response to the amendments and arguments previously submitted by Applicant the Examiner has taken the position that those are not persuasive and has stated her response as follows:

> "In response to applicant's arguments, regarding claims 1, 31, 52, and 70-73, that Abraham does not deal with provide or allow (i) three-dimensional parts; (ii) loading a pre-existing file; and (iii) analyzing a custom manufactured part of arbitrary shape, it is noted that AAPA was applied for limitations (i) and (ii). As per limitation (iii), Abraham et al. disclose that *"the rule-based parametric design feature, not only allows extension of the design to multiple panels, but to panels of irregular or varied shapes, such as to trapezoidal, triangular, peak pentagon, arch shapes, and to other geometrical shapes" (see col. 10, lines 7-16)."*

With respect, even if one accepts the Examiner's contention that the AAPA in combination with Abraham would make it obvious to modify Abraham to receive three-dimensional CAD files, (which Applicants certainly do not accept for the reasons further set forth below) the Abraham system still would not be capable of dealing with such a CAD file for a custom manufactured part of arbitrary shape.

The underlined phrase "of arbitrary shape" means that the part defined by the CAD file can have a shape of the client's origination, and it is not limited to predetermined shapes dictated by the manufacturer.

The Abraham system, on the other hand, cannot handle files related to arbitrary shapes, but can only handle files selected from a menu provided by the manufacturer.

To this point, the Examiner has referred to Abraham at column 10, lines 7-16 and has quoted the language "the rule-based parametric design feature, not only allows extension of the design to multiple panels, but to panels of irregular or varied shapes, such as to trapezoidal, triangular, peak pentagon, arch shapes, and to other geometrical shapes".

The Examiner is apparently equating Abraham's "irregular or varied shapes" to the "arbitrary shape" required by the present claims. But, there is nothing arbitrary about the "irregular or varied" shapes of Abraham. Those "irregular or varied shapes" still must be selected from the very limited menu provided by the manufacturer. The language the Examiner has quoted from Abraham is simply an extension of the previous paragraph at column 9, line 52 through column 10, line 6 where Abraham describes the ability of its system to resize a rectangular shaped panel. The subsequent paragraph which the Examiner has quoted is merely saying that those pre-existing designs can also be reshaped by the manufacturer's program to other predetermined shapes other than rectangular, which Abraham has referred to generally as "irregular or varied shapes" and for which Abraham has given the specific examples of "trapezoidal, triangular, peak pentagon, arch shapes, and to

other geometrical shapes". Even though those specific shapes are more complex than a rectangular shape, they still are in no sense arbitrary.

The present claims require the system to be capable of dealing with a CAD file describing a custom manufactured part of arbitrary shape. That means the shape is determined by the customer, not by the manufacturer.

The Abraham et al. system is not at all related to the manufacture of truly custom parts of arbitrary shape, regardless of whether they are two dimensional or three dimensional. Instead, the Abraham et al. system merely describes a proprietary network entirely controlled by the product manufacturer which allows the customer to select and order from a menu, with some modest customization as to size or to shape selected from those shapes predetermined by the manufacturer. The customer selects from one of a limited number of manufacturer specified product shapes. Then the customer is allowed to make some limited modifications to that shape simply to make it fit a window opening in which the customer is going to place the manufacturer's specified design.

Thus it is apparent that from the commercial viewpoint the Abraham et al. system is directed to a completely different problem than is the present invention. The present invention provides a system which allows the customer to get a binding price quotation for a three-dimensional custom manufactured part of arbitrary shape completely determined by the customer. Abraham et al. on the other hand is simply an ordering system completely controlled by the manufacturer which simply provides pricing on customer selected options from a manufacturer specified design and option list. No amount of modification of the Abraham et al. system is ever

going to turn it into the system of the present invention. They simply are directed to entirely different problems and processes.

With regard to the Examiner's proposed use of AAPA to allegedly make obvious the use of three-dimensional CAD files with the Abraham reference, it is respectfully submitted that such a combination would not be obvious. As a reading of the Abraham et al. disclosure shows it is directed solely to the manufacture of glass panels which are two-dimensional objects. There is absolutely no reason to modify the system of Abraham et al. to utilize three-dimensional CAD files, when the Abraham et al. system is solely devoted to the construction of two-dimensional articles. What would be the possible motivation for using three-dimensional CAD files to manufacture two-dimensional articles? Clearly there is none.

The Dependent Claims

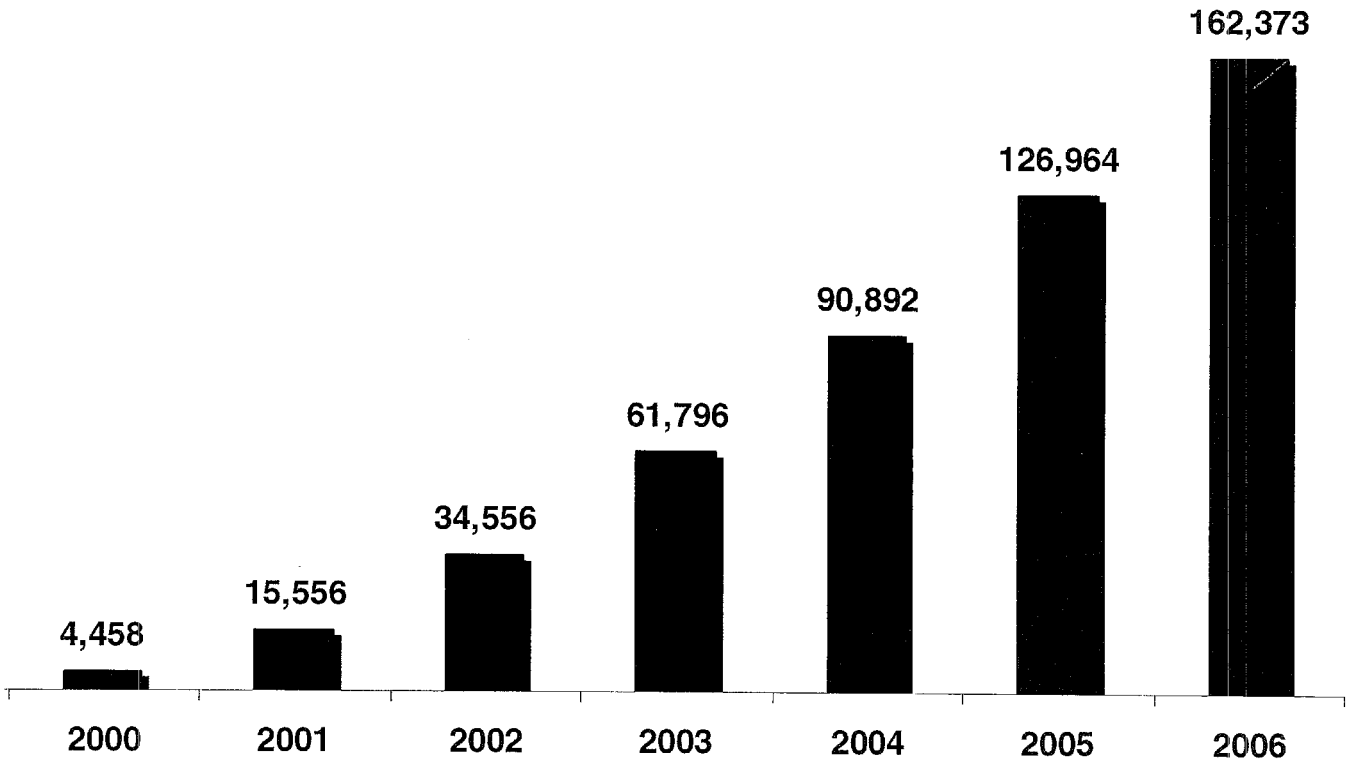
In the previous response filed by Applicant, Applicant separately traversed the Examiner's rejection of several groups of the dependent claims and presented very substantive arguments in support thereof, which the Examiner has not responded to at all in the most recent Office Action. This includes the fact that the Examiner has not even acknowledged that the Protomold.com reference cited by the Examiner is not prior art to the present application in view of the DECLARATION UNDER RULE 131 previously filed by Applicant.

Applicant is repeating below the substance of those previous arguments and respectfully requests that the Examiner at least respond to the arguments

Quickparts

QuickQuote Adoption

Application of Invention to the Market



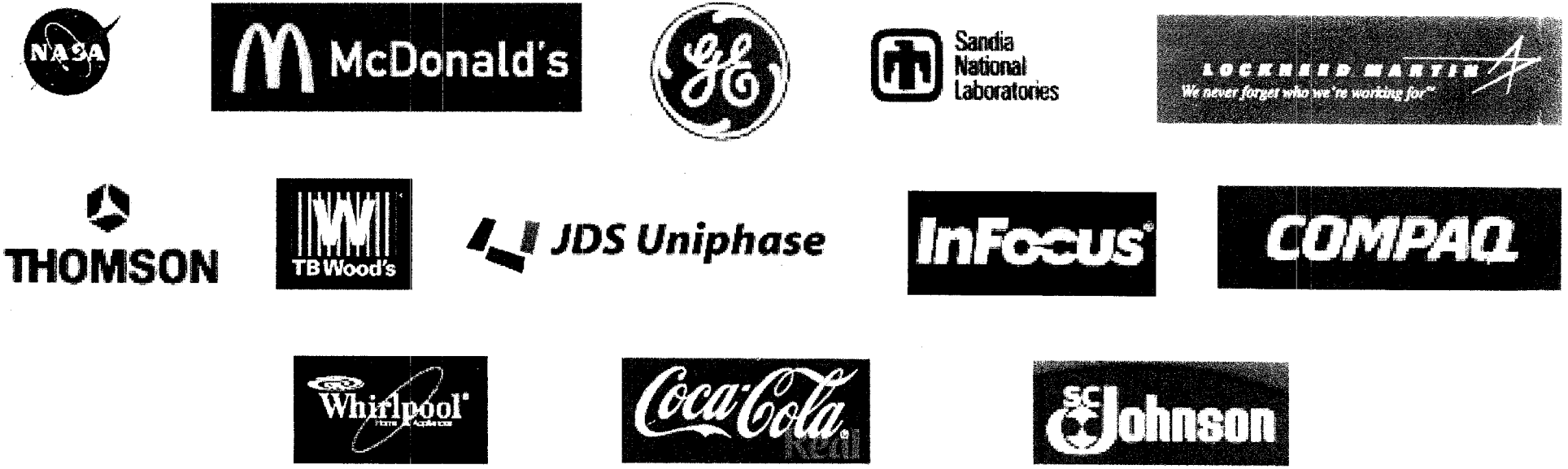
0 Instant Quotes before 2000

09/736,555
Ex. E to Interview Summary

Quickparts

Customers

More than 150,000 instant quotes and 6,000 customers...



"Quickparts caters to a broad range of industries including aerospace, medical, defense, industrial, and consumer products. Right now, we serve customers from about 20 different countries around the world."

- Ron Hollis, President & CEO